CLAIMS:

1. A micro-mechanical thermal structure comprising

two layers of material with different thermal expansion coefficients in a first direction and a second direction respectively, whereby the first direction is transverse to the second direction and the two layers comprising an oriented polymer whereby the director of the molecules of the oriented polymer of the first layer is transverse to the director of the molecules of the oriented polymer of the second layer.

2. A micro-mechanical thermal structure as claimed in claim 1 wherein the oriented polymer comprises a liquid crystalline polymeric material.

3. A micro-mechanical thermal structure as claimed in claim 1 wherein the two layers constitute a single layer wherein the director of the liquid crystalline molecules on one side of the single layer is rotated with respect to the director of the liquid crystalline molecules on the opposite side of the single layer.

4. A micro-mechanical thermal structure as claimed in claim 3, wherein the liquid crystalline molecules are splay oriented with the director at one side of the single layer being oriented parallel to the single layer and the director at the other side of the single layer being oriented perpendicular to the single layer.

5. A micro-mechanical thermal structure as claimed in claim 1 wherein the director of the liquid crystalline molecules is parallel to the layers.

6. Thermo-optical modulator comprising a plurality of micro-mechanical thermal structures as claimed in claim 1 ordered on a substrate.

7. Thermo-optical modulator as claimed in claim 6 wherein the layers are provided with a reflective coating or an absorbing coating.

8. Thermo-optical modulator as claimed in claim 6 wherein the oriented polymer layers comprise a dichroic guest-host dye for absorbing light.

9. Method of manufacturing a micro-mechanical thermal structure comprising the steps of:

- shaping a mold with a desired surface relief for replicating the shape of the micro-mechanical thermal structure;
- providing the mold with an orientation-inducing layer to obtain a molecular orientation in the monomeric state of liquid crystalline monomers,
- pressing a reactive liquid crystalline monomeric material between the mold and a substrate;
- polymerizing the liquid crystalline monomeric material;
- releasing the mold from the substrate whereby the micro-mechanical thermal structure of the substrate is obtained.

10. Method of manufacturing a micro-mechanical thermal structure as claimed in claim 9, wherein the step of providing the mold with an orientation-inducing layer comprises further steps of:

coating the surface of the mold with a photo-alignment layer; and

exposing the photo-alignment layer to UV radiation to obtain a structure inducing a predetermined direction of the director of the liquid crystalline molecules on the mold surface.

11. Method of manufacturing a micro-mechanical thermal structure as claimed in claim 7, wherein the step of exposing the photo-alignment layer comprises two sub-steps of

- exposing the photo-alignment layer to ultra-violet radiation with a first linear polarization direction; and
- exposing the photo-alignment layer to ultra-violet radiation with a second linear polarization direction, which second polarization direction is different from the first polarization direction.